

***P4X400DB/P4X400DBP  
P4X400DBZ/P400TWIN  
USER'S MANUAL***

***M/B For Socket 478 Pentium 4 Processor***

***NO. G03-P400BT***

***Rev: 2.0***

***Release date: Jan. 2004***

**Trademark:**

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### Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	Jan. 2004

### Item Checklist

- ☒ P4X400DB/P4X400DBP/P4X400DBZ/P400TWIN motherboard
- ☒ Cable for IDE/Floppy
- ☐ Cable for 1394 Connector (for P4X400DBZ only)
- ☒ CD for motherboard utilities
- ☐ Cable for USB Port 3/4 (Option)
- ☒ Y-Cable for 2 Keyboard/ 2 Mouse (for P400TWIN only)
- ☒ P4X400DB/P4X400DBP/P4X400DBZ/P400TWIN User's Manual
- ☒ Quick Installation Guide MagicTwin Manual (for P400TWIN only)

## Intel Pentium 4 Processor Family

### Cooling Solutions

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly crucial when building computer systems. Maintaining the proper thermal environment is key to reliable, long-term system operation. The overall goal in providing the proper thermal environment is keeping the processor below its specified maximum case temperature. Heatsinks induce improved processor heat dissipation through increased surface area and concentrated airflow from attached fans. In addition, interface materials allow effective transfers of heat from the processor to the heatsink. For optimum heat transfer, Intel recommends the use of thermal grease and mounting clips to attach the heatsink to the processor.

When selecting a thermal solution for your system, please refer to the website below for collection of heatsinks evaluated and recommended by Intel for use with Intel processors. Note, those heatsinks are recommended for maintaining the specified Maximum T case requirement. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support Intel processors.

For vendor list of heatsink and fan, please visit :

<http://developer.intel.com/design/Pentium4/components/index>

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# Chapter 1

## Introduction

The special designed 2-user motherboard allows (P400TWIN) two users to share the computing power of a single PC system. With integrated connectivity hardware onboard, the motherboard comes with innovative software, the MagicTwin<sup>®</sup>, allowing 2 users to be connected to it and runs up to two stations directly from it simultaneously. The unique and copyright-protected MagicTwin<sup>®</sup> technology makes each of the 2 users feel like having himself his own Windows-XP computer. Each user needs to have himself his own keyboard, mouse, sound device, and monitor. All remaining PC hardware are shared, even the IP.

Both users can operate on their own station concurrently just like the operation of a standard PC. There is no obvious delay because of the Time-slicing/Multiplexing technology built-in. Each user gets an exact and extremely short defined moment to access to the PC system, devices, applications and Windows itself. Resources are only claimed for nanoseconds at a time, usually from electronic memory, or cache. Both users get from Windows and the PC, what they really need when they need it! The MagicTwin solution turns the single PC into a cost-effective multi-user system.

The setup is intuitive and easy. In only a few minutes, users can install and start using their new workstation. No network administrator is needed as everything to network the workstations together is done automatically with the MagicTwin software. You can add immediately additional user station to the single system and turn one PC into two.

### System Requirement

Jetway MagicTwin Motherboard:

- 2 x PS/2 Y-cable

- Install CD (Driver and MagicTwin)

- Serial Number and Activation Key

Purchased Separately from Dealer:

- >=1.2 GHz Processor

- Min 256MB DRAM

- NVIDIA Dual Head AGP Graphic Card

- Windows XP Home, Prof. w/ SP1

- 2 x PS/2 Keyboards

- 2 x PS/2 Mice

- 2 x Monitors

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## 1-1 Feature of motherboard

The P4X400DB/P4X400DBP/P4X400DBZ/P400TWIN motherboard is design for use Intel Pentium 4 Processor in 478 Pin Package Processor with the VIA P4X400 Chipset delivers a high performance and professional desktop platform solution. Which utilize the Socket 478 design and the memory size expandable to 3.0GB.

These motherboards use the newest VIA P4X400 Chipset. Supports 533MHz System Bus in data transfer rate. The motherboard provided 133/166MHz Memory clock frequency, support DDR266/DDR333 DDR Module. The motherboard embedded VIA VT8235 V-Link LPC South Bridge offer ULTRA ATA **133** to provide speedier HDD throughout that boosts overall system performance. The P4X400DBP/P4X400DBZ embedded VIA VT6103 PHYceiver offer LAN function provide 10/100 MHz full and half duplex operation.

The P4X400DBZ embedded VIA VT6307 IEEE1394A Controller chip provided 400Mbps/s bandwidth for data transfer, offered standard 1394 devices.

These motherboards also has an integrated AC'97 2.2 6-channel CODEC on board which is fully compatible with Sound Blaster Pro<sup>®</sup> that gives you the best sound quality and compatibility.

For those wanting even greater graphic performance, an AGP 8X slot is included on the board, support AGP 4X/8X capability and Fast write Transaction.

With USB control as well as capability of expanding to 6x USB2.0 function ports delivering 480Mb/s bandwidth and rich connectivity, and these motherboards meet future USB demand also has built-in hardware monitor function to monitor and protect your computer.

A useful software tool “Magic BIOS” examines the BIOS version automatically with the correct version available on the web, links the site for users to download the latest version of BIOS and updates the BIOS. Use “Magic BIOS”, users can download and update BIOS automatically and completed under the OS easily.

These motherboards provide high performance & meets future specification demand. It is really wise choice for your computer.

## 1-2 Specification

<b>Spec</b>	<b>Description</b>
<b>Design</b>	* ATX form factor 4 layers PCB size: 30.5x21.0cm
<b>Chipset</b>	* VIA P4X400 North Bridge Chipset * VIA VT8235CE South Bridge Chipset
<b>CPU Socket (mPGA478B Socket)</b>	* Support Intel Pentium 4 478 Pin package utilizes Flip-Chip Pin Grid Array (FC-PGA2) package processor * Support 1.5G~3.06G 478 Pin Pentium 4 processor * Reserves support for future Intel Pentium 4 processors
<b>Memory Socket</b>	* 184-pin DDR Module socket x 3 * Support 3 pcs DDR266/DDR333 DDR Modules Expandable to 3.0GB
<b>Expansion Slot</b>	* AGP slot x1 support AGP 2.0 & 3.0 for 4X/8X mode * 32-bit PCI slot x5
<b>Integrate IDE</b>	* Two PCI IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100/133 functions that deliver the data transfer rate up to 133 MB/s
<b>LAN (for P4X400DBP/ P4X400DBZ)</b>	* Support Fast Ethernet LAN function provide 10/100 Mb/s data transfer rate
<b>1394 (for P4X400DBZ)</b>	* VIA VT6307 1394 Controller chip * Support 2 ports Standard 1394A devices provide 400Mbps/s bandwidth
<b>Audio</b>	* AC'97 Digital Audio controller integrated * AC'97 <b>6-Channel Audio</b> CODEC on board * Audio driver and utility included
<b>BIOS</b>	* Award 2MB Flash ROM
<b>Multi I/O</b>	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1 * Serial port x2 * USB2.0 port x2 and headers x 4 (connecting cable option) * Audio connector (Line-in, Line-out , MIC & Game Port)

## 1-3 Performance List

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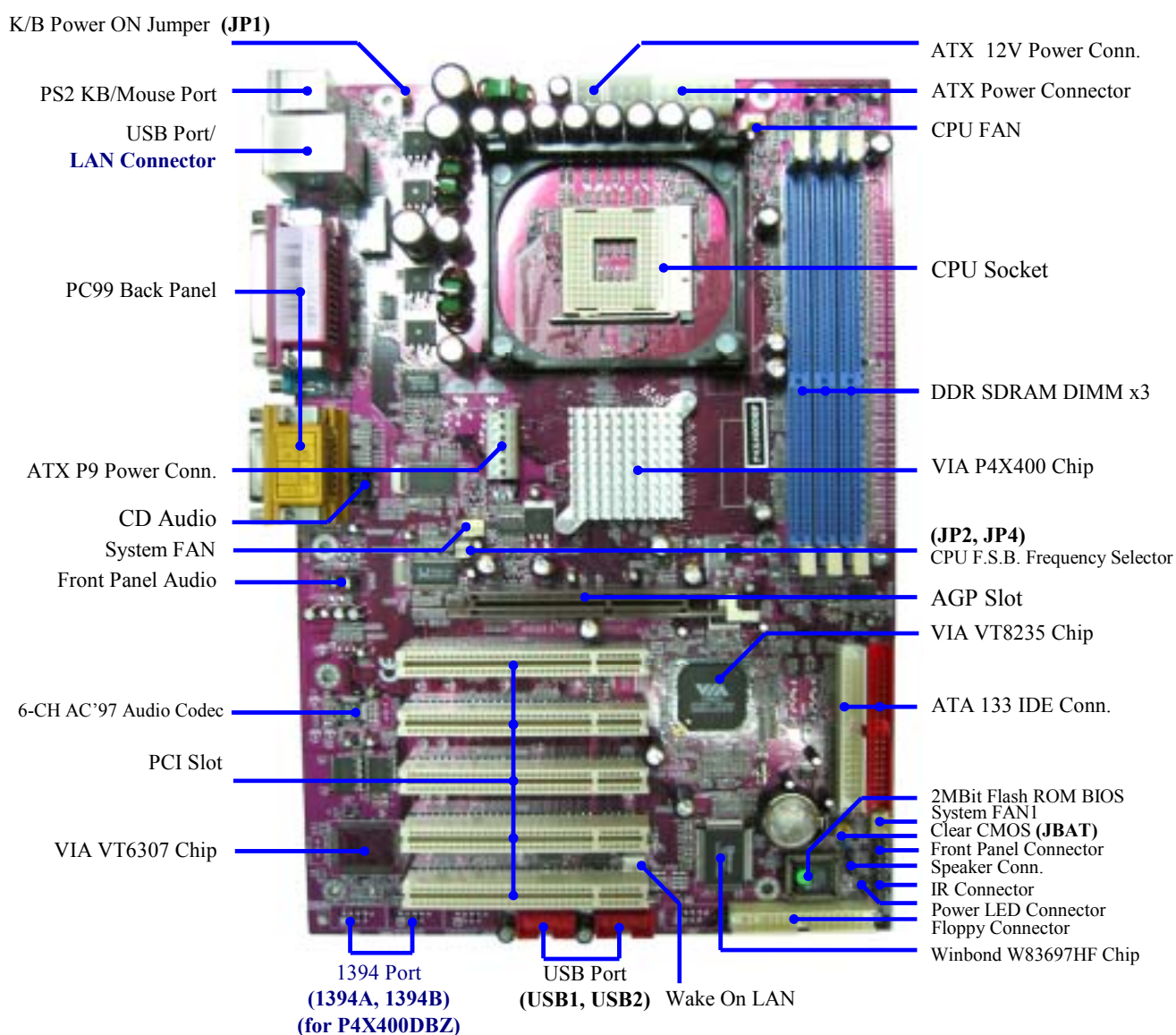
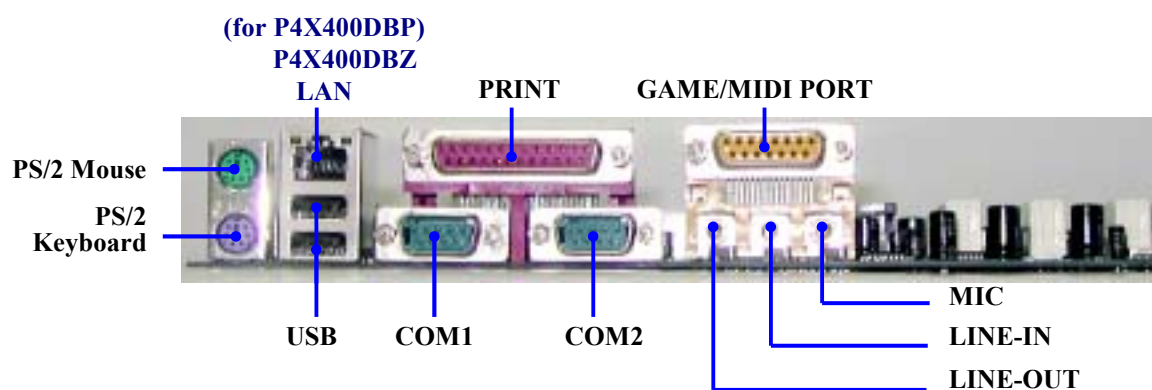
The following performance data list is the testing result of some popular benchmark testing programs. These data are just referred by users, and there is no responsibility for different testing data values gotten by users (the different Hardware & Software configuration will result in different benchmark testing results.)

## Performance Test Report

**CPU:** Intel Pentium 4 2.53GHz mPGAB package  
**DRAM:** 256MB DDR400 SDRAM x2 (KINGMAX DL684T4AA-50)  
**VGA Expansion Card:** SIS Xaber 400 DDR 64MB AGP 8X (1024x768xHi-color)  
**Hard Disk Driver:** IBM IC35L040AVVN07-0 (ATA-100)  
**BIOS:** Award Optimal default  
**OS:** Win 98SE

	<b>133/200 2.53GHz</b>
<b>3D Mark 2000</b>	10047
<b>3D Mark 2001SE</b>	7378
<b>3D Winbench 2000</b>	219
<b>PC Mark 2002</b>	
<b>CPU/Memory/HDD</b>	6103/5399/1280
<b>Content Creation Winstone 2001</b>	69.3
<b>Content Creation Winstone 2002</b>	28.8
<b>Business Winstone2001</b>	67.3
<b>Winbench 99:</b>	
CPU Mark 99	156
FPU Winmark 99	8880
Business Disk Winmark99	12500
Hi-end Disk Winmark99	29900
Business Graphic Winmark	538
Hi-end Graphic Winmark	1500
<b>SYS Mark 2000/2001 : SISMark 2000/2001 Rating (Internet Content Creation / Office Productivity)</b>	
SISMark 2000	284 (311/266)
SISMark 2001	225 (255/198)
<b>SISOFT Sandra 2001 :</b>	
Dhrystone ALU MIPS	4780
Whetstone FPU/iSEE2 MFLOPS	1526/3127
RAM Int Buffered iSSE2 MB/S	2147
RAM Float Buffered iSSE2 MB/S	2107
Integer SSE2 IT/S	10038
Floating-Point SSE2 IT/S	12241
QUAKE3 DEMO1 FPS	212.9
DEMO2 FPS	209.6
WCPUID System/CPU Clock	133.99/2545.90

## 1-4 Layout Diagram & Jumper Setting



## Jumpers



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Jumper	Name	Description	Page
JBAT	CMOS RAM Clear	3-pin Block	P.7
JP1	Keyboard Power On Enable/Disabled	3-pin Block	P.8
JP2, JP4	CPU Front Side Bus Frequency Select	6-pin Block	P.8

### Connectors

Connector	Name	Description	Page
ATXPWR	ATX Power Connector	20-pin Block	P.12
ATX12V	ATX 12V Power Connector	4-pin Block	P.13
ATXP1	ATX P9 Power Connector	6-pin Block	P.13
PS2KBM	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.14
USB	USB Port Connector	4-pin Connector	P.14
<b>LAN (P4X400DBP/ P4X400DBZ)</b>	<b>LAN Port Connector</b>	<b>RJ-45 Connector</b>	P.14
LPT	Parallel Port Connector	25-pin Female	P.14
AUDIO_GAME	Audio/Game Connector	3 phone jack+15-pin Connector	P.14
COM1/COM2	Serial Port COM1/2 Connector	9-pin Connector	P.14
FDD	Floppy Driver Connector	34-pin Block	P.14
IDE1/IDE2	Primary/Secondary IDE Connector	40-pin Block	P.15

### Headers

Header	Name	Description	Page
<b>1394A/1394B (for P4X400DBZ)</b>	<b>IEEE1394A Port headers</b>	<b>9-pin Block</b>	<b>P.16</b>
AUDIO	SPEAKER, MIC header	9-pin Block	P.16
USB1/USB2	USB Port Headers	9-pin Block	P.16
HD LED	IDE activity LED	2-pin Block	P.17
RESET	Reset switch lead	2-pin Block	P.17
SPEAK	PC Speaker connector	4-pin Block	P.17
PWR LED	Power LED	2-pin Block	P.17
PWR BTN	Power switch	2-pin Block	P.17
WOL	Wake On-LAN Headers	3-pin Block	P.17
SFAN1, SYSFAN, CPUFAN	FAN Headers	3-pin Block	P.18
IR	IR infrared module Headers	5-pin Block	P.18
CD_IN	CD Audio-In Headers	4-pin Block	P.18

### Expansion Sockets

Socket/Slot	Name	Description	Page
ZIF Socket 478 Pin	CPU Socket	478-pin mPGA CPU Socket	P.9
DDR1, DDR2, DDR3	DDR Module Socket	184-pin DDR Module expansion Socket	P.10
PCI1 ~ PCI5	PCI Slot	32-bit PCI Local Bus Expansion slots	P.11
AGP	AGP 8X Mode Slot	AGP Expansion Slot	P.12

## Chapter 2

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## Hardware installation

### 2-1 Hardware installation Steps

Before using your computer, you had better complete the following steps:

1. Check motherboard jumper setting
2. Install CPU and Fan
3. Install System Memory (DIMM)
4. Install Expansion cards
5. Connect IDE and Floppy cables, Front Panel /Back Panel cable
6. Connect ATX Power cable
7. Power-On and Load Standard Default
8. Reboot
9. Install Operating System
10. Install Driver and Utility

### 2-2 Checking Motherboard's Jumper Setting

#### (1) CMOS RAM Clear (3-pin) : JBAT

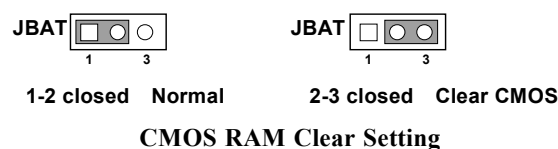
A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT to store the CMOS data.

To clear the CMOS, follow the procedure below:

1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JBAT and short pins 2-3 for a few seconds
4. Return JBAT to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

**Note: When should clear CMOS**

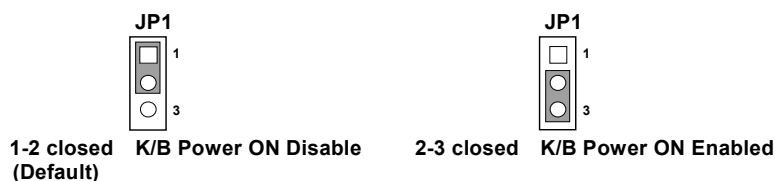
1. *Troubleshooting*
2. *Forget password*
3. *After over clocking system boot fail*



#### (2) Keyboard Power On function Enabled/Disabled: JP1

When setting Enabled you can using keyboard by key in password to power on system.

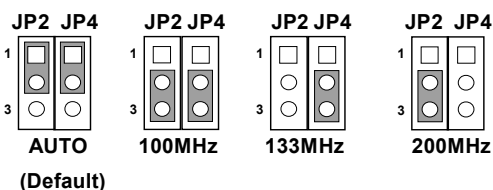




Keyboard Power On Setting

### (3) CPU Front Side Bus Frequency Select Jumper : JP2, JP4 (2x3-pin)

JP2	JP4	CPU CLK	(Default)
1-2	1-2	AUTO	
2-3	2-3	100MHz	
OFF	2-3	133MHz	
2-3	OFF	200MHz	



CPU Front Side Bus Frequency Setting

## 2-3 Install CPU

### 2-3-1 Glossary

**Chipset (or core logic)** - two or more integrated circuits which control the interfaces between the system processor, RAM, I/O devices, and adapter cards.

**Processor slot/socket** - the slot or socket used to mount the system processor on the motherboard.

**Slot** (AGP, PCI, ISA, RAM) - the slots used to mount adapter cards and system RAM.

**AGP** - Accelerated Graphics Port - a high speed interface for video cards; runs at 1X (66MHz), 2X (133MHz), 4X (266MHz) or 8X (533MHz).

**PCI** - Peripheral Component Interconnect - a high speed interface for video cards, sound cards, network interface cards, and modems; runs at 33MHz.

**ISA** - Industry Standard Architecture - a relatively low speed interface primarily used for sound cards and modems; runs at approx. 8MHz.

**Serial Port** - a low speed interface typically used for mouse and external modems.

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**Parallel Port** - a low speed interface typically used for printers.

**PS/2** - a low speed interface used for mouse and keyboards.

**USB - Universal Serial Bus** - a medium speed interface typically used for mouse, keyboards, scanners, and some digital cameras.

**Sound** (interface) - the interface between the sound card or integrated sound connectors and speakers, MIC, game controllers, and MIDI sound devices.

**LAN** (interface) - Local Area Network - the interface to your local area network.

**BIOS (Basic Input/Output System)** - the program logic used to boot up a computer and establish the relationship between the various components.

**Driver** - software, which defines the characteristics of a device for use by another device or other software.

**Processor** - the "central processing unit" (CPU); the principal integrated circuit used for doing the "computing" in "personal computer"

**Front Side Bus Frequency** - the working frequency of the motherboard, which is generated by the clock generator for CPU, DRAM and PCI BUS.

**CPU L2 Cache** - the flash memory inside the CPU, normal it depend on CPU type.

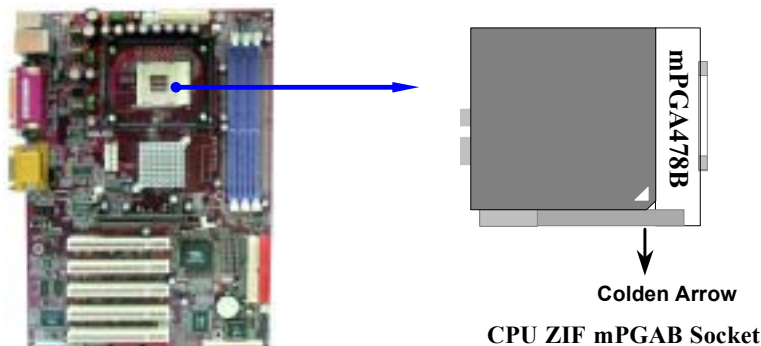
## 2-3-2 About Intel Pentium 4 478-pin CPU

This motherboard provides a 478-pin surface mount, Zero Insertion Force (ZIF) socket, referred to as the mPGA478B socket supports Intel Pentium 4 processor in the 478 Pin package utilizes Flip-Chip Pin Grid Array (FC-PGA2) package technology.

The CPU that comes with the motherboard should have a cooling FAN attached to prevent overheating. If this is not the case, then purchase a correct cooling FAN before you turn on your system.

<p><b>WARNING!</b> Be sure that there is sufficient air circulation across the processor's heatsink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.</p>
---

To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the level sideways away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should point toward the end of the level. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.



When you put the CPU into the ZIF socket. No force require to insert of the CPU, then press the level to Locate position slightly without any extra force.

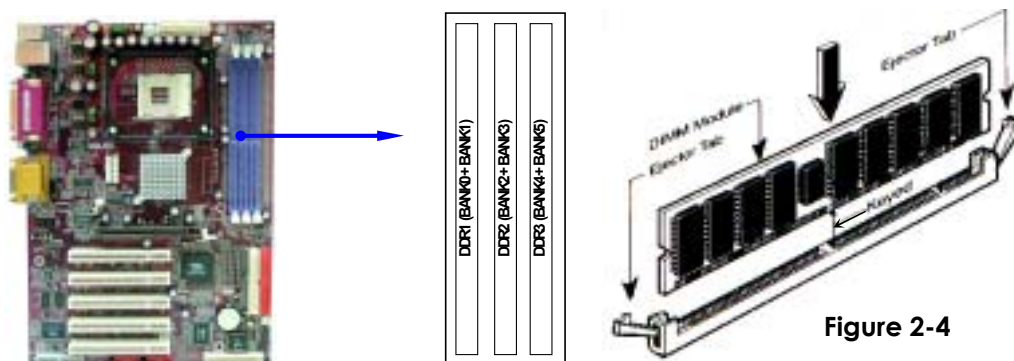
## 2-4 Install Memory

This motherboard provides **three** 184-pin DDR DUAL INLINE MEMORY MODULES (DIMM) sites for DDR memory expansion available from minimum memory size of 64MB to maximum memory size of 3.0GB DDR SDRAM.

### Valid Memory Configurations

Bank	184-pin DDR DIMM	PCS	Total Memory
Bank 0, 1 (DDR1)	DDR333/266/200 DDR DRAM Module	X1	64MB~1.0GB
Bank 2, 3 (DDR2)	DDR333/266/200 DDR DRAM Module	X1	64MB~1.0GB
Bank 4, 5 (DDR3)	DDR333/266/200 DDR DRAM Module	X1	64MB~1.0GB
Total	System Memory (Max. 3.0GB)	X3	64MB~3.0GB

Generally, installing DDR SDRAM modules to your motherboard is very easy, you can refer to figure 2-4 to see what a 184-pin DDR SDRAM module looks like.



**NOTE!** When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indentation on both sides.

**WARNING!** For the DDR SDRAM CLOCK is set at 133MHz, use only DDR266- compliant DDR Modules. When this motherboard operate at 133MHz, most system will not even boot if non-compliant modules are used because of the strict timing issues, if your DDR Modules are not DDR266-compliant, set the SDRAM clock to 100MHz to ensure system stability.

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## 2-5 Expansion Cards

**WARNING!** Turn off your power when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

### 2-5-1 Procedure For Expansion Card Installation

1. Read the documentation for your expansion card and make any necessary hardware or software setting for your expansion card such as jumpers.
2. Remove your computer's cover and the bracket plate on the slot you intend to use.
3. Align the card's connectors and press firmly.
4. Secure the card on the slot with the screen you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

### 2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need an IRQ to operate. Generally, an IRQ must exclusively assign to one use. In a standard design, there are 16 IRQs available but most of them are already in use.

#### Standard Interrupt Assignments

IRQ	Priority	Standard function
0	N/A	System Timer
1	N/A	Keyboard Controller
2	N/A	Programmable Interrupt
3 *	8	Communications Port (COM2)
4 *	9	Communications Port (COM1)
5 *	6	Sound Card (sometimes LPT2)
6 *	11	Floppy Disk Controller
7 *	7	Printer Port (LPT1)
8	N/A	System CMOS/Real Time Clock
9 *	10	ACPI Mode when enabled
10 *	3	IRQ Holder for PCI Steering
11 *	2	IRQ Holder for PCI Steering
12 *	4	PS/2 Compatible Mouse Port
13	N/A	Numeric Data Processor
14 *	5	Primary IDE Channel
15 *	1	Secondary IDE Channel

\* These IRQs are usually available for ISA or PCI devices.

### 2-5-3 Interrupt Request Table For This Motherboard

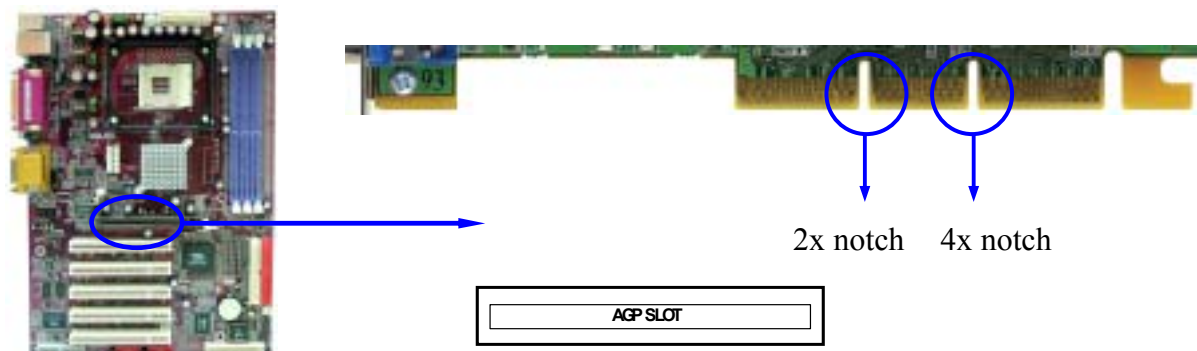
Interrupt request are shared as shown the table below:

	INT A	INT B	INT C	INT D	INT E	INT F	INT G	INT H
Slot 1	√							
Slot 2		√						
Slot 3			√					
Slot 4				√				
Slot 5					√			
Onboard USB 1					√			
Onboard USB 2								√
1394			√					
AC97/MC97			√					

**IMPORTANT!** If using PCI cards on shared slots, make sure that the drivers support “Shared IRQ” or that the cards don’t need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

## 2-5-4 AGP Slot

This motherboard provides an AGP Slot, support the 2X/4X/8X AGP VGA card.

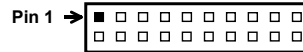


## 2-6 Connectors, Headers

### 2-6-1 Connectors

#### (1) Power Connector (20-pin block) : ATXPWR

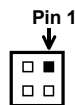
ATX Power Supply connector. This is a new defined 20-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.



PIN	ROW2	ROW1
1	3.3V	3.3V
2	-12V	3.3V
3	GND	GND
4	Soft Power On	5V
5	GND	GND
6	GND	5V
7	GND	GND
8	-5V	Power OK
9	+5V	+5V (for Soft Logic)
10	+5V	+12V

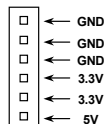
## (2) ATX 12V Power Connector (4-pin block) : ATX12V

This is a new defined 4-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully support Pentium 4 processor must including this connector for support extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.

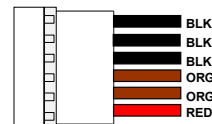


## (3) ATX P9 Power Connector (6-pin block) : ATXP1

This is a new defined 6-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully support Pentium 4 processor must including this connector for support extra 3.3V and 5V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.



Power Connector on Motherboard



Power Plugs from Power Supply



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(4) **PS/2 Mouse & PS/2 Keyboard Connector: PS2KBM**

The connectors for PS/2 keyboard and PS/2 Mouse.

(5) **USB Port connector: USB**

The connectors are 4-pin connector that connect USB devices to the system board.

(6) **LAN Port connector: LAN (only for P4X400DBP/P4X400DBZ)**

This connector is standard RJ45 connector for Network.

(7) **Parallel Port Connector (25-pin female): LPT**

Parallel Port connector is a 25-pin D-Subminiature Receptacle connector. The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 “INTEGRATED PERIPHERALS SETUP” section for more detail information.

(8) **Audio and Game Connector : AUDIO\_GAME**

This Connector are 3 phone Jack for LINE-OUT, LINE-IN, MIC and a 15-pin D-Subminiature Receptacle Connector for joystick/MIDI Device.

**Line-out :** Audio output to speaker

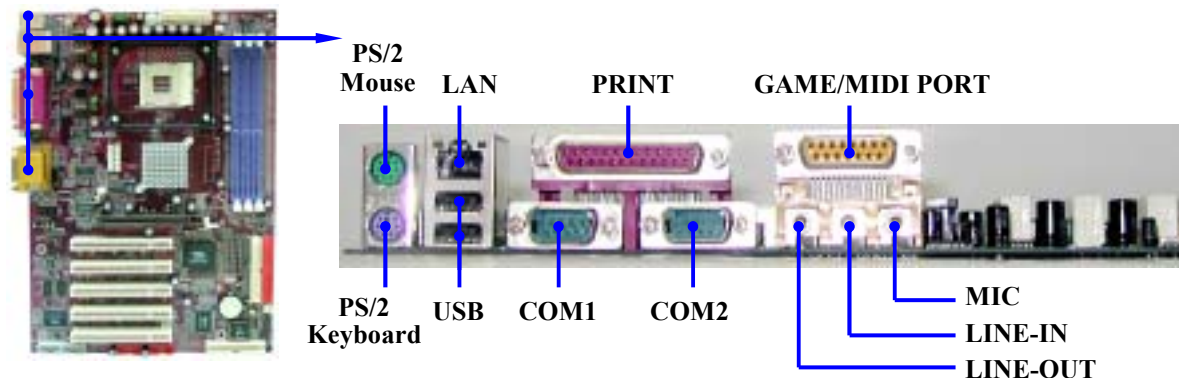
**Line-in :** Audio input to sound chip

**MIC :** Microphone Connector

**Game/MIDI :** For joystick or MIDI Device

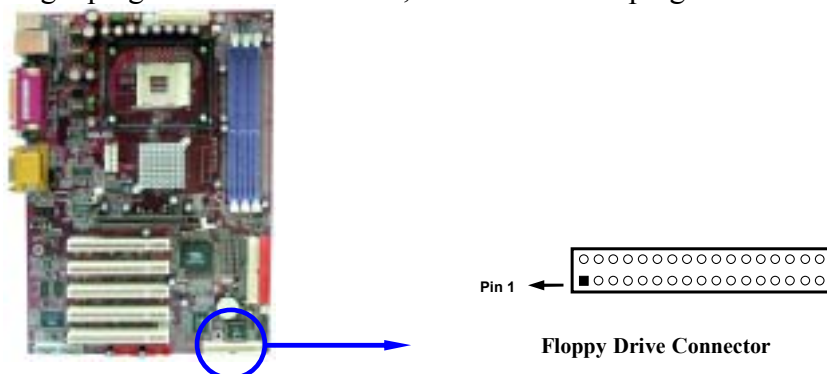
(9) **Serial Port COM1/COM2 : COM1/COM2**

COM1/COM2 is the 9-pin D-Subminiature male connector. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 “INTEGRATED PERIPHERALS SETUP” section for more detail information.



(10) **Floppy drive Connector (34-pin block): FDD**

This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.

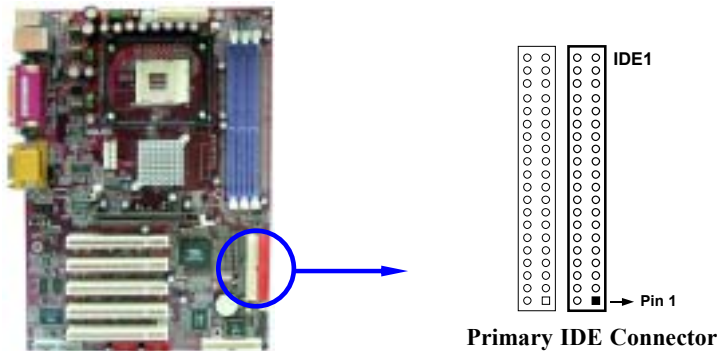


(11) **Primary IDE Connector (40-pin block): IDE1**

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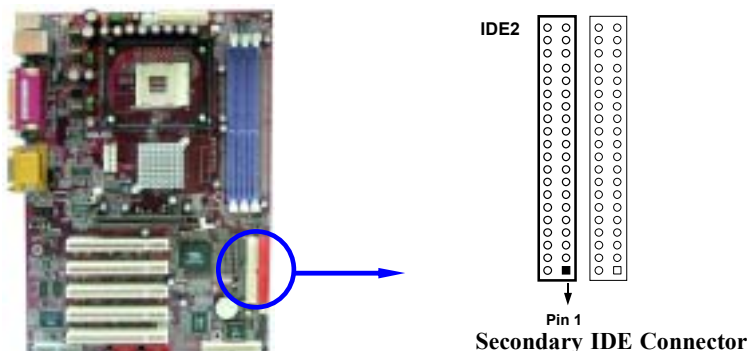
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This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.



**(12) Secondary IDE Connector (40-pin block): IDE2**

This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.



- Two hard disks can be connected to each connector. The first HDD is referred to as the “Master” and the second HDD is referred to as the “Slave”.
- For performance issues, we strongly suggest you don’t install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop.

## 2-6-2 Headers

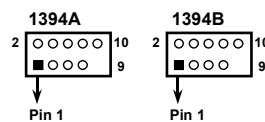
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(1) **IEEE 1394A Port Header (9-pin) : 1394A/1394B (For P4X400DBZ only)**



*Note: Orient the read marking on the 1394 ribbon cable to pin 1*

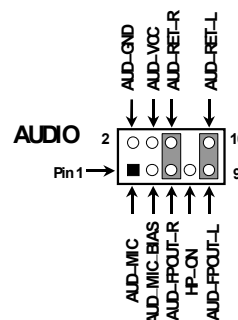
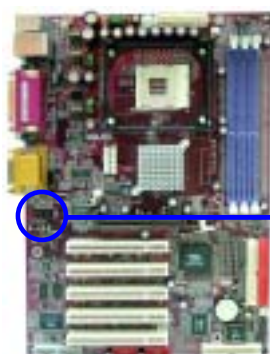


IEEE1394A Port Header

(2) **Line-Out/MIC Header for Front Panel (9-pin): AUDIO**

This header connect to Front Panel Line-out, MIC connector with cable.

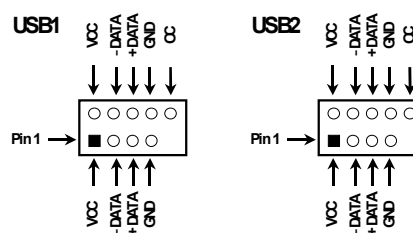
Without install the cable, this header default setting is 5-6 short, 9-10 short. When you install the cable you have take off these jumpers.



Line-Out, MIC Headers

(3) **USB Port Headers (9-pin) : USB1, USB2**

These headers are used for connecting the additional USB port plug. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.



USB Port Headers

(4) **IDE Activity LED: HD LED**

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This connector connects to the hard disk activity indicator light on the case.

**(5) Reset switch lead: RESET**

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure below.

**(6) Speaker connector: SPEAK**

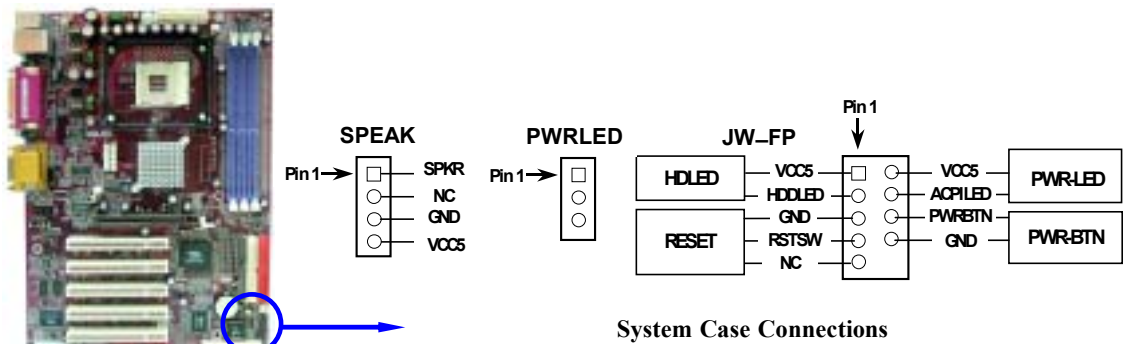
This 4-pin connector connects to the case-mounted speaker. See the figure below.

**(7) Power LED: PWR LED**

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

**(8) Power switch: PWR BTN**

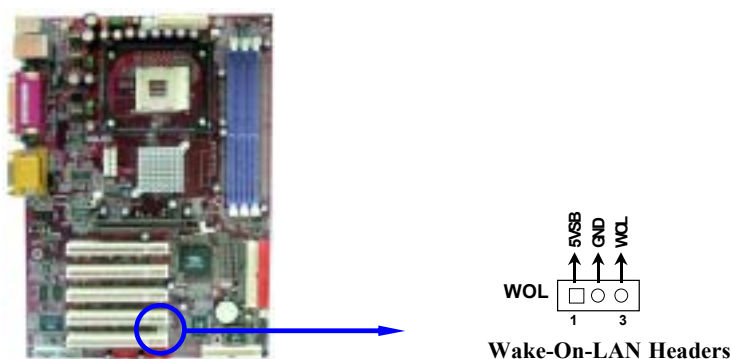
This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.



**(9) Wake On-LAN/Modem Headers (3-pin) : WOL**

This connector connects to a LAN card with a WAKE ON-LAN output. This connector power up the system when a wake up signal is received through the LAN card.

**NOTE:** This feature requires that Wake On LAN or Ring In Wake up is enabled.

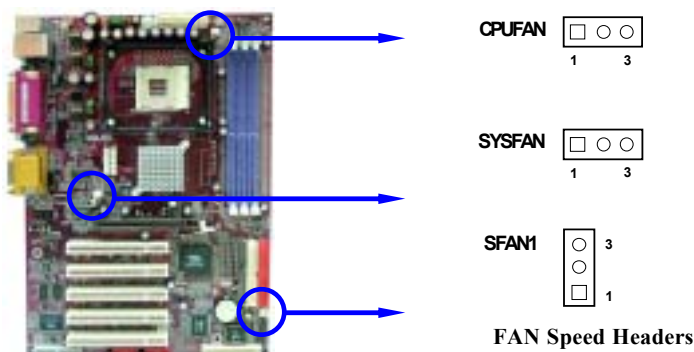


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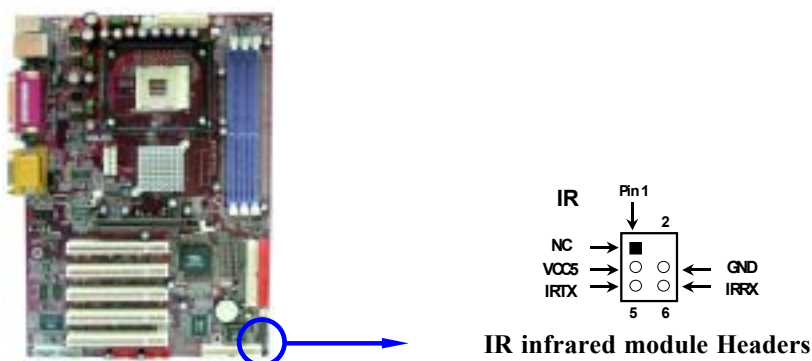
**(10) FAN Headers (3-pin) : SFAN1, SYSFAN, CPUFAN**

These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.



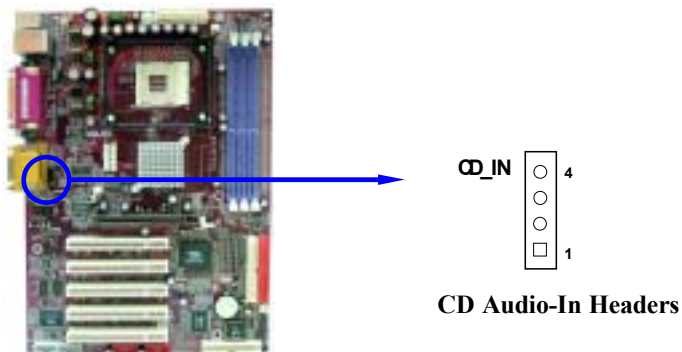
**(11) IR infrared module Headers (5-pin) : IR**

This connector supports the optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.



**(12) CD Audio-In Headers (4-pin) : CD\_IN**

CD\_IN are the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.



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## 2-7 Starting Up Your Computer

1. After all connection are made, close your computer case cover.
2. Be sure all the switch are off, and check that the power supply input voltage is set to proper position, usually in-put voltage is 220V~240V or 110V~120V depending on your country's voltage used.
3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
4. Turn on your peripheral as following order:
  - a. Your monitor.
  - b. Other external peripheral (Printer, Scanner, External Modem etc...)
  - c. Your system power. For ATX power supplies, you need to turn on the power supply and press the ATX power switch on the front side of the case.
5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch between orange and green after the system is on. If it complies with green standards or if it is has a power standby feature. The system will then run power-on test. While the test are running, the BIOS will alarm beeps or additional message will appear on the screen.

If you do not see any thing within 30 seconds from the time you turn on the power. The system may have failed on power-on test. Recheck your jumper settings and connections or call your retailer for assistance.

Beep	Meaning
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM install or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated System running at a lower frequency

6. During power-on, press <Delete> key to enter BIOS setup. Follow the instructions in BIOS SETUP.
7. **Power off your computer:** You must first exit or shut down your operating system before switch off the power switch. For ATX power supply, you can press ATX power switching after exiting or shutting down your operating system. If you use Windows 9X, click "**Start**" button, click "**Shut down**" and then click "**Shut down the computer?**" The power supply should turn off after windows shut down.

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## Chapter 3

### Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.
- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.
- Press Page Up/Page Down or +/- keys when you want to modify the BIOS parameters for the active option.

### 3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup.

If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

**Press <F1> to continue, <Ctrl-Alt-Esc> or <Del> to enter Setup**

### 3-2 Getting Help

#### Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

#### Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.





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### Load Optimized Defaults

Use this menu to load the BIOS default values these are setting for optimal performances system operations for performance use.

### Load Standard Defaults

Use this menu to load the BIOS default values for the stable performance system operation that are factory settings for normal use.

### Set Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

### Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

### Exit Without Saving

Abandon all CMOS value changes and exit setup.

## 3-4 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
Standard CMOS Features

Date (mm:dd:yy)	Thu, Oct, 09 2003	Item Help
Time (hh:mm:ss)	14 : 10 : 27	
> IDE Primary Master	Press Enter None	Menu Level >  Change the day, month, year and century
> IDE Primary Slave	Press Enter None	
> IDE Secondary Master	Press Enter None	
> IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.25 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All,But Keyboard	
Base Memory	640K	
Extended Memory	56320K	
Total Memory	57344K	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### Date

The date format is <day><month><date><year>.

**Day** Day of the week, from Sun to Sat, determined by BIOS. Read-only.

**Month** The month from Jan. through Dec.

**Date** The date from 1 to 31 can be keyed by numeric function keys.

**Year** The year depends on the year of the BIOS.

### Time

The time format is <hour><minute><second>.

### Primary Master/Primary Slave

### Secondary Master/Secondary Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be "None".

If the controller of HDD interface is CD-ROM, the selection shall be "None"

**Access Mode**      The settings are Auto Normal, Large, and LBA.

**Cylinder**            number of cylinders

**Head**                number of heads

**Precomp**            write precomp

**Landing Zone**      landing zone

**Sector**             number of sectors

## 3-5 Advanced BIOS Features

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### Advanced BIOS Features

Anti-Virus Protection	Disabled	Item Help
CPU L1 Cache	Enabled	
CPU L2 Cache	Enabled	Menu Level >
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
MPS Version Control For OS	1.4	
OS Select for DRAM > 64MB	Non-OS2	
OS Select for System	MS Windows	
HDD S.M.A.R.T. Capability	Disabled	
Report No FDD For Windows	Yes	
Video BIOS Shadow	Enabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### Anti-Virus Protection

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Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

**Disabled** (default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

**Enabled** Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

### **CPU Internal Cache**

The default value is Enabled.

**Enabled** (default) Enable cache

**Disabled** Disable cache

***Note:** The internal cache is built in the processor.*

### **External Cache**

Choose Enabled or Disabled. This option enables the Level 2 cache memory.

### **CPU L2 Cache ECC Checking**

Choose Enabled or Disabled. This option enables the Level 2 cache memory ECC (error check correction).

### **Quick Power On Self-Test**

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled. BIOS will shorten or skip some check items during POST.

**Enabled** (default) Enable quick POST

**Disabled** Normal POST

### **First/Second/Third/Fourth Boot Device**

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-3, SCSI, CDROM, LAD and Disabled.

### **Swap Floppy Drive**

Switches the floppy disk drives between being designated as A and B. Default is Disabled.

### **Boot Up Floppy Seek**

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

### **Boot Up NumLock Status**

The default value is On.

**On** (default) Keypad is numeric keys.

**Off** Keypad is arrow keys.

### **Typematic Rate Setting**

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

### **Typematic Rate (Chars/Sec)**

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---

Sets the number of times a second to repeat a keystroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

### Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke. The settings are 250, 500, 750, and 1000.

### Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

- System** The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
- Setup (default)** The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

### OS Select For DRAM > 64MB

Allows OS2® to be used with >64MB of DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2®.

## 3-6 Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

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### Advanced Chipset Features

<div>&gt; DRAM Timing Settings</div> <div>&gt; AGP Timing Settings</div> <div>&gt; PCI Timing Settings</div> <div>System BIOS Cacheable</div> <div>Video RAM Cacheable</div> <div>Memory Hole</div>	<div>Press Enter</div> <div>Press Enter</div> <div>Press Enter</div> <div>Disabled</div> <div>Disabled</div> <div>Disabled</div>	<div>Item Help</div>
		<div>Menu Level &gt;</div>
<div>↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help</div> <div>F5:Previous Values F6:Optimized Defaults F7:Standard Defaults</div>		

### DRAM Timing Settings

Please refer to section 3-6-1

### AGP Timing Settings

Please refer to section 3-6-2

### PCI Timing Settings

Please refer to section 3-6-3

### System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

### Video RAM Cacheable

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

### Memory Hole

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The settings are: Enabled and Disabled.

## 3-6-1 DRAM Timing Settings

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### DRAM Timing Settings

System Performance	By SPD	Item Help
RAS Active Time	7T	Menu Level >>
RAS Precharge Time	3T	
RAS to CAS Delay	3T	
DRAM CAS Latency	2.5	
Bank Interleave	Enabled	
DRAM Command Rate	2T Command	
DRAM Burst Length	8	
Write Recovery Time	2T	
Write to Read Command Delay	3T	
↑↓↔← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### RAS Active Time

This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2T and 3T.

### RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain date. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2T and 3T.

### CAS Latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2T and 2.5T.

## 3-6-2 AGP Timing Settings

AGP Timing Settings

AGP Transfer Aperture Size	64M	Item Help
AGP Transfer Mode	4X	
AGP Driving Control	Auto	
* AGP Driving Value	DA	Menu Level >>
AGP Fast Write	Disabled	
AGP Master 1 WS Write	Enabled	
AGP Master 1 WS Read	Enabled	
CPU to AGP Post Write	Disabled	
AGP Delay Transaction	Disabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

*Note: Change these settings only if you are familiar with the chipset.*

### 3-6-3 PCI Timing Settings

PCI Timing Settings

PCI Master 1 WS Write	Disabled	Item Help
PCI Master 1 WS Read	Disabled	
CPU to PCI Write Buffer	Enabled	
PCI Delay Transaction	Disabled	Menu Level >>
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

#### PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1. The settings are: Enabled and Disabled.

### 3-7 Integrated Peripherals

Integrated Peripherals

> OnChip IDE Function	Press Enter	Item Help
> OnChip Device Function	Press Enter	
> Onboard Super IO Function	Press Enter	
Init Display First	PCI Slot	Menu Level >
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

#### OnChip IDE Function

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Please refer to section 3-7-1

### OnChip Device Function

Please refer to section 3-7-2

### Onboard Super IO Function

Please refer to section 3-7-3

### Init Display First

This item allows you to decide to activate whether PCI Slot or AGP VGA first. The settings are: PCI Slot, AGP Slot.

## 3-7-1 OnChip IDE Function

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### OnChip IDE Function

OnChip IDE Channel0	Enabled	Item Help
OnChip IDE Channel1	Enabled	
Primary Master PIO	Auto	Menu Level >>
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
IDE 32-bit Transfer Mode	Enabled	
IDE Prefetch Mode	Enabled	
IDE HDD Block Mode	Enabled	
Delay For HDD (Secs)	0	
↑↓↔← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### OnChip IDE Channel0/Channel1

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

### Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

### Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support. The settings are: Auto, Disabled.

### IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Enabled, Disabled.

## 3-7-2 OnChip Device Function

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software

### OnChip Device Function

VIA 1394 Function	Enabled →(for P4X400DBZ)	Item Help
VIA LAN Function	Enabled →(for P4X400DBP/	
VIA LAN Boot ROM	Disabled P4X400DBZ)	
VIA LAN BootROM Boot option	Hook INT19	Menu Level >>
VIA LAN BootROM PXERPL Option	PXE	
Current VIA MAC Address is	003018-XXXXXX	
VIA MAC Address Input	Press Enter	
AC97 Sound Device	Auto	
Game Port Address	201	
Midi Port Address	Disabled	
Midi Port IRQ	10	
USB Host Controller	Enabled	
USB 2.0 Support	Enabled	
USB Keyboard Legacy Support	Disabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### AC97 Sound Device

This item allows you to decide to enable/disable the chipset family to support AC97 Audio. The settings are: Enabled, Disabled.

### Game Port Address/Midi Port Address

This will determine which Address the Game Port/Midi Port will use.

### USB Host Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB peripherals. The settings are: Enabled, Disabled.

### USB Keyboard Legacy Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are: Enabled, Disabled.

## 3-7-3 Onboard Super IO Function



Onboard Super IO Function

Onboard FDD Controller	Enabled	Item Help
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	Menu Level >>
UART2 Mode	Normal	
RxD, TxD Active	Hi, Lo	
IR Duplex Mode	Half	
Use IR Pins	IRRX/IRTX	
Onboard Parallel Port	378/IRQ7	
Parallel Mode	SPP	
EPP Mode Select	EPP1.7	
ECP Mode Use DMA	3	
↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### Onboard FDD Controller

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

### Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and the second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

### UART2 Mode

This item allows you to determine which InfraRed(IR) function of the onboard I/O chip, this functions uses.

### Onboard Parallel Port

There is a built-in parallel port on the on-board Super I/O chipset that Provides Standard, ECP, and EPP features. It has the following option:

#### Disabled

- (3BCH/IRQ7)/ Line Printer port 0
- (278H/IRQ5)/ Line Printer port 2
- (378H/IRQ7) Line Printer port 1

### Parallel Port Mode

- SPP : Standard Parallel Port
- EPP : Enhanced Parallel Port
- ECP : Extended Capability Port

#### SPP/EPP/ECP/ECP+EPP

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP." By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP+EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA" at this time, the user can choose between DMA channels 3 to 1. The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select." At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

## 3-8 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy saving while operating in a manner consistent with your own style of computer use.

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software

Power Management Setup

ACPI Function	Enabled	Item Help
Video Off Option	Always off	
Video off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	Menu Level >
Power Button Function	Instant-Off	
Power After Power Failure	Off	
> Wake Up Events	Press Enter	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### ACPI Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI). The settings are Enabled and Disabled.

### Video Off Option

This determines the manner in which the monitor is blanked. The choice are Suspend → off, All Modes → Off, and Always On.

### Video Off Method

This determines the manner in which the monitor is blanked.

- DPMS (default)** Initial display power management signaling.
- Blank Screen** This option only writes blanks to the video buffer.
- V/H SYNC+Blank** This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

### Modem Use IRQ

This determines the IRQ in which the MODEM can use.

The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

### Power Button Function

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

### Wake Up Events

Please refer to section 3-8-1

## 3-8-1 Wake up Events

## Wake Up Events

VGA	OFF	Item Help
LPT & COM	LPT/COM	
HDD & FDD	ON	Menu Level >>
PCI Master	OFF	
Wake-Up on Ring/LAN	Disabled	
Wake-Up on PCI PME	Disabled	
Wake-Up on RTC Alarm	Disabled	
x Date of Month Alarm	0	
x Time (hh:mm:ss) Alarm	0 : 0 : 0	
> IRQs Activities	Press Enter	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

**Wake Up On Ring/PME**

During Disabled, the system will ignore any incoming call from the modem. During Enabled, the system will boot up if there's an incoming call from the modem.

**Wake-Up on RTC Alarm**

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

**Date(of month) Alarm**

You can choose which month the system will boot up. Set to 0, to boot every day.

**Time(hh:mm:ss) Alarm**

You can choose what hour, minute and second the system will boot up.

**Note:** If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

**IRQs Activities**

Please refer to section 3-8-1.1

**3-8-1.1 IRQs Activities**

## IRQs Activities

Primary INTR	ON	Item Help
IRQ3 (COM 2)	Enabled	Menu Level >>>
IRQ4 (COM 1)	Enabled	
IRQ5 (LPT 2)	Enabled	
IRQ6 (Floppy Disk)	Enabled	
IRQ7 (LPT 1)	Enabled	
IRQ8 (RTC Alarm)	Disabled	
IRQ9 (IRQ2 Redir)	Disabled	
IRQ10 (Reserved)	Disabled	
IRQ11 (Reserved)	Disabled	
IRQ12 (PS/2 Mouse)	Enabled	
IRQ13 (Coprocessor)	Disabled	
IRQ14 (Hard Disk)	Enabled	
IRQ15 (Reserved)	Disabled	
↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

**3-9 PnP/PCI Configuration Setup**

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

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PnP/PCI Configurations

PnP OS Installed	No	Item Help
Reset Configuration Data	Disabled	
Resources Controlled By	Manual	Menu Level >
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults
---

### Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: Enabled and Disabled.

### Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”).

The settings are: Auto(ESCD), Manual.

### IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

Please refer to section 3-9-1

### PCI/VGA Palette Snoop

Leave this field at *Disabled*. The settings are Enabled, Disabled.

## 3-9-1 IRQ Resources

## IRQ Resources

IRQ3	assigned to	PCI Device	Item Help
IRQ4	assigned to	PCI Device	
IRQ5	assigned to	PCI Device	Menu Level >>
IRQ7	assigned to	PCI Device	
IRQ9	assigned to	PCI Device	
IRQ10	assigned to	PCI Device	
IRQ11	assigned to	PCI Device	
IRQ12	assigned to	PCI Device	
IRQ14	assigned to	PCI Device	
IRQ15	assigned to	PCI Device	
↑↓← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

### 3-10 PC Health Status

This section shows the Status of you CPU, Fan, Warning for overall system status. This is only available if there is Hardware Monitor onboard.

## PC Health Status

Shutdown Temperature	Disabled	Item Help	
CPU Warning Temperature	Disabled		
Show PC Health in Post	Enabled	Menu Level >	
Current System Temperature	25°C		
Current CPU Temperature	38°C		
CPUFAN	5000 rpm		
SYSFAN	5000 rpm		
Vcore	1.78V		
Vcc3.3	3.31V		
+ 5V	4.98V		
+12V	12.22V		
-12V	-12.36V		
-5V	-5.09V		
VBAT (V)	3.21V		
5VSB (V)	5.02V		
↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

#### Shutdown Temperature

This item can let users setting the Shutdown temperature, when CPU temperature over this setting the system will auto shutdown to protect CPU.

#### Show PC Health in Post

During Enabled, it displays information list below. The choice is either Enabled or Disabled

**Current CPU Temperature/Current System Temp/Current FAN1, FAN2 Speed/Vcore/Vdd/3.3V/+5V/+12V/-12V/VBAT(V)/5VSB(V)**

This will show the CPU/FAN/System voltage chart and FAN Speed.

#### Detect CPUFAN in Post

During Enabled, system will warn the user if CPU Fan is not functioning.

### 3-11 Miscellaneous Control

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This section is for setting CPU Frequency/Voltage Control.

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Miscellaneous Control

CPU Clock Ratio	8X	Item Help
Auto Detect DIMM/PCI Clk	Enabled	
Spread Spectrum	Disabled	Menu Level >
** Current Host/PCI Clock is 100/33MHz **		
Host/PCI Clock at Next Boot is	100/33MHz	
** Current DRAM Clock is 133MHz **		
DRAM Clock at next Boot is	133MHz	
VCCQ Select	1.5V(Default)	
+2.5V Select	2.5V(Default)	
VDIMM Select	2.6V(Default)	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

#### Auto Detect DIMM/PCI Clk

This item allows you to enable/disable auto detect DIMM/PCI Clock.

#### Spread Spectrum

This item allows you to set the CPU Host/PCI clock and Spread Spectrum.

The settings are: Enabled, Disabled.

#### Host/PCI Clock at next Boot is

This item allows you to select CPU frequency step by step increasing

The choice are: 100MHz~132MHz, 133MHz~200MHz.

#### DRAM Clock at next Boot is

This field displays the capability of the memory modules that you can use

The choice is either 100MHz or 133MHz (only select CPU Frequency 100MHz.)

#### VCCQ Select

This item allows you to select 1.5V of the AGP 4X VGA card. The choice are: 1.5V, 1.6V.

#### VDIMM Select

This item allows you to select 2.5V of the DDR Module. The choice are: 2.5V, 2.6V, 2.7V, 2.8V.

## 3-12 Load Standard/Optimized Defaults

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### **Load Standard Defaults**

When you press <Enter> on this item, you get confirmation dialog box with a message similar to:

Load Standard Defaults (Y/N)? N

Pressing <Y> loads the BIOS default values for the most stable, minimal-performance system operations.

### **Load Optimized Defaults**

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing <Y> loads the default values that are factory settings for optimal performance system operations.

## **3-13 Set Supervisor/User Password**

You can set either supervisor or user password, or both of them. The differences are:

**Supervisor password:** Can enter and change the options of the setup menus.

**User password:** Can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

### **ENTER PASSWORD:**

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm that the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

### **PASSWORD DISABLED.**

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

## **Chapter 4**

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## DRIVER & FREE PROGRAM INSTALLATION

Check your package and there is A MAGIC INSTALL CD included. This CD consists of all DRIVERS you need and some free application programs and utility programs. In addition, this CD also include an auto detect software which can tell you which hardware is installed, and which DRIVERS needed so that your system can function properly. We call this auto detect software MAGIC INSTALL.

### MAGIC INSTALL supports WINDOWS 9X/ME/NT4.0/2000/XP

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as below. If the menu does not appear, double-click MY COMPUTER / double-click CD-ROM drive or click START / click RUN / type X:\SETUP.EXE (assuming X is your CD-ROM drive).



**From MAGIC INSTALL MENU you may make 10 selections:**

- |               |   |
|---------------|---|
| 1. VIA 4 IN 1 | install VIA Service Pack 4 IN 1 driver  |
| 2. SOUND      | install AC97 Audio Codec Installing driver  |
| 3. LAN        | install VIA 10/100MB LAN Controller driver<br><b>(Only for P4X400DBP/P4X400DBZ)</b> |
| 4. USB2.0     | install USB 2.0 driver  |
| 5. PC-CILLIN  | install PC-CILLIN2002 anti-virus program  |
| 6. PC-HEALTH  | install Winbond PC-HEALTH hardware monitor Software                                 |
| 7. MBIOS&DX9  | install BIOS Live Update Utility & Microsoft DirectX 9 driver                       |
| 8. MAGIC TWIN | install Magic Twin Utility  |
| 9. BROWSE CD  | to browse the contents of the CD  |
| 10. EXIT      | to exit from MAGIC INSTALL menu   |

### 4-1 IDE Install VIA Service Pack 4 IN 1 Driver

\* The path of the file is X:\VIA\DRIVER\SETUP.EXE



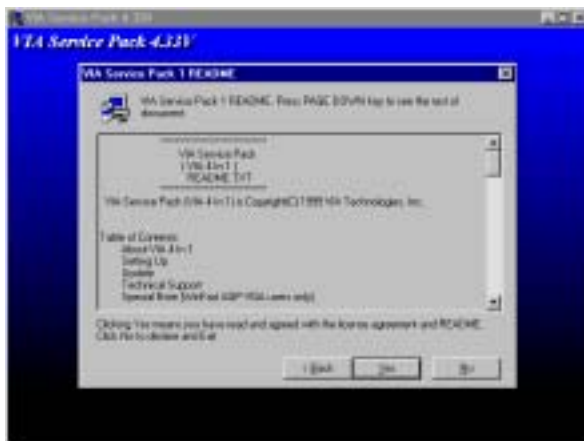
- IDE :** VIA ATAPI VENDOR SUPPORT DRIVER IS USED TO FIXED COMPATIBILITY ISSUE FOR IDE DEVICES
- AGPVXD :** VIA AGPVXD DRIVER IS TO BE INSTALLED, IF YOU ARE USING AN AGP VGA CARD, VIAGART.VXD WILL PROVIDE SERVICE ROUTINES TO YOUR VGA DRIVER AND INTERFACE DIRECTLY TO HARDWARE, PROVIDING FAST GRAPHIC ACCESS
- IRQ ROUTING :** VIA PCI IRQ MINIPOUT DRIVER IS TO BE INSTALLED UNDER WIN98 ONLY, IT WILL FIX PCI IRQ ROUTING SEQUENCE
- INF :** VIA REGISTRY DRIVER IS TO BE INSTALLED UNDER WINDOWS THE DRIVER WILL ENABLE VIA POWER MANAGERMENT CONTROLLER



1. Click IDE when MAGIC INSTALL MENU appears



2. Click NEXT when VIA Service Pack Wizard appears



3. This is to announce the Copy Write, click Yes



4. Click NEXT to choose all driver



5. Click NEXT to Install ATAPI Vender Support Driver



6. Click NEXT to choose enabled DMA Mode



7. Click NEXT to Install VIA AGP VXD Driver



8. Click NEXT to Install VIA IRQ Routing Miniport Driver



9. Click Finish to restart computer

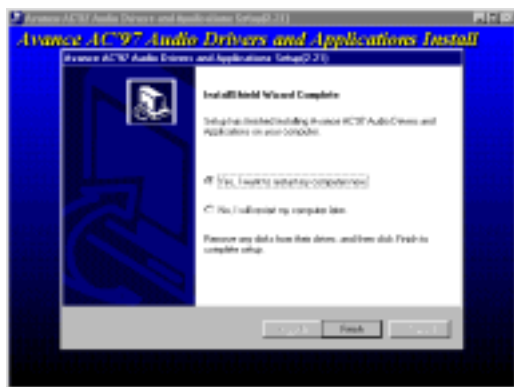
## 4-2 SOUND Install ALC Audio Codec Driver



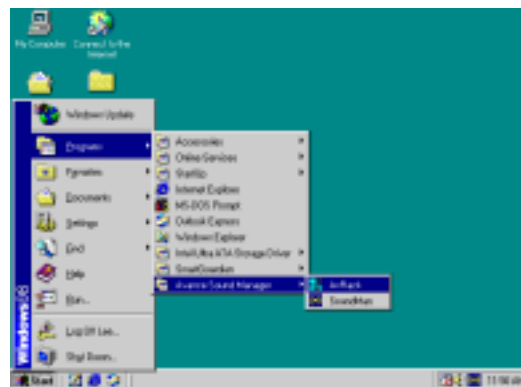
1. Click SOUND when MAGIC INSTALL MENU appears



2. Then auto detect operation system language edition, click Next, start to install DRIVER



3. Click Finish and Restart Windows



4. Click Start→Program→Avance Sound Manager→AvRack. Then AVRACK Windows appears



5. Avance Audio Rack table can play CD, WAV, MID, MP3, AVI, MPG Format File



6. Sound Effect select and KaraOK Mode Function



7. Manual Sound Effect Setting



8. This is 2 channel/4 channel/6 channel speakers output setting

**NOTE: MAGIC INSTALL will auto detect file path:**

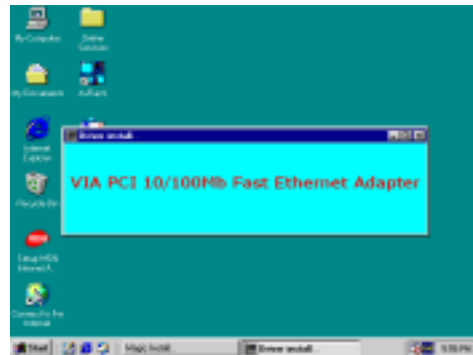
**X:\CODEC\ALCCODEC\SETUP.EXE (for WINDOWS 98SE/ME/NT4.0/2000/XP)**

**You need setting the “Environment Form Sound Effect” before you want to change 4/6 channel speaker output (Example: Room/Livingroom.....)**

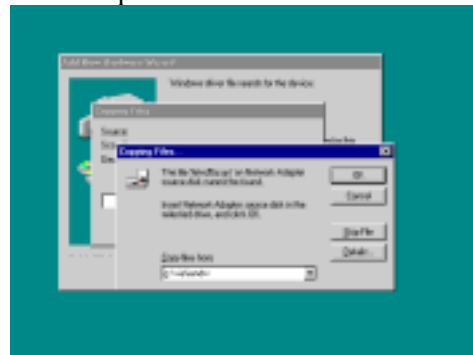
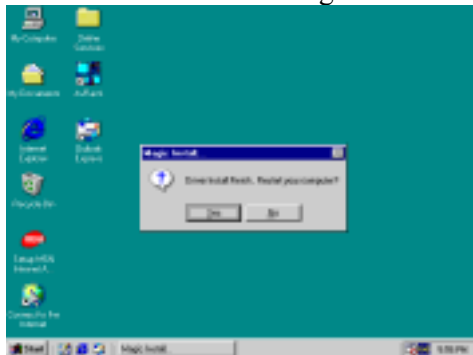
---

## 4-3 LAN Install VIA10/100MB LAN Controller Driver (Only for P4X400DBP/P4X400DBZ)

The VIA10/100MB PCI Ethernet Adapter Driver path is X:\VIA\LANDRV



1. Click LAN when Magic Install Menu appear      2. Setup VIA 10/100Mb PCI Ethernet Driver



3. Driver install Finish , Click Yes and Restart Computer      4. When windows ask VIA 10/100Mb PCI Ethernet Adapter driver path, Change directory to X:\VIA\LANDRV and click OK , then finish installation

## 4-4 PC-HEALTH Winbond Hardware Doctor Monitoring Software

The path of the file is X:\VIA\HEALTH-W\SETUP.EXE

(Support Windows 9X/ME/2K/NT/XP)

In Windows 95/98 Winbond Hardware Doctor Monitoring Software needs some system files to copy in Utility that's why it needs install PC-HEALTH twice to complete setup.



1. Click PC-Health when Magic Install Menu appears      2. Click OK when Winbond Hardware Doctor Setup Window appears



3. Click the Button to start installation



4. Select Program Group name or enter a new group name, click continue to setup and click OK after setup complete

## 4-4-1 How To Utilize PC-HEALTH



1. Click Program → Winbond Hardware Doctor → Hardware Doctor the Winbond Hardware Doctor will appear  
You can remove the Utility in Control Panel → Add/Remove Program icon



2. After executing Winbond Hardware Doctor it supports system voltage, Fan speed and CPU/ SYSTEM Temperature. Because this is a On-time Monitoring program therefore the value will change after it detected, if the value is over default setting the system will have warning picture and beeps

## 4-5 MAGIC BIOS Install BIOS Live Update Utility

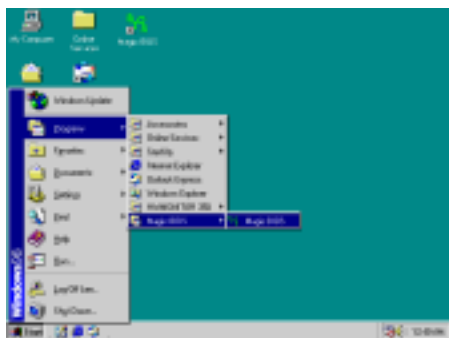


1. Click Magic BIOS when Magic Install MENU appears



2. Click Next to install the Magic BIOS in Destination Folder

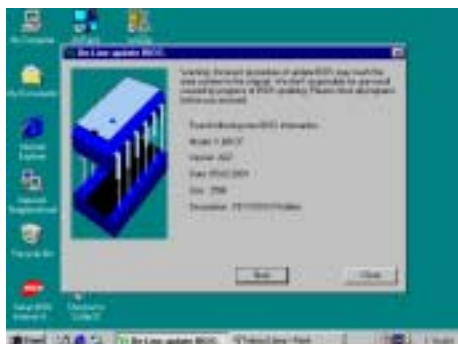




3. After finish Setup you will have a Magic BIOS icon in your screen



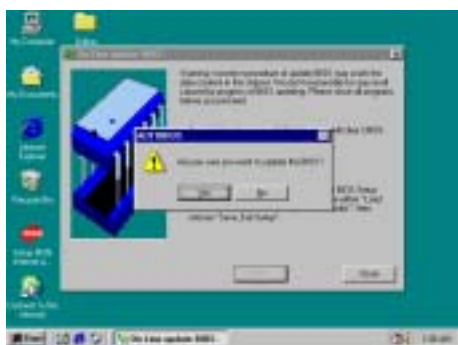
4. Double click the Magic BIOS icon you will have this picture, choose from internet you can upgrade BIOS On-line



5. When On-line update BIOS the program will auto-check your BIOS version



6. Click Next if you need update BIOS, after upgrade BIOS, the system will clear CMOS and automatically restart



7. Click Yes if you want to update the BIOS otherwise choose No to exit



8. When System programming BIOS don't turn off power, after finish update BIOS, the system will clear CMOS and automatically Restart



9. When choose From Local Driver to update BIOS, you must have the correct BIOS file in your Local Driver



10. Choose the correct BIOS file to update BIOS

---

## 4-6 USB2.0 Install VIA USB2.0 Device Driver



1. Click USB2.0 when MAGIC INSTALL MENU Appear



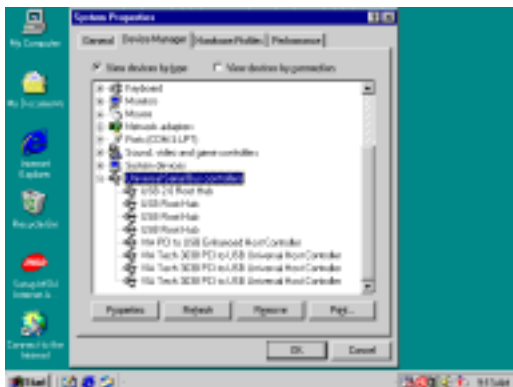
2. When USB2.0 Setup Program Appear, Click NEXT



3. Select Install USB Driver and Click NEXT



4. Select FINISH and Restart your Computer



5. Check device working properly in Device Manager

**The Path of the file is X:\VIA\VIAUSB20\SETUP.EXE**

---

## 4-7 PC-CILLIN Install PC-CILLIN 2004 Anti-virus program



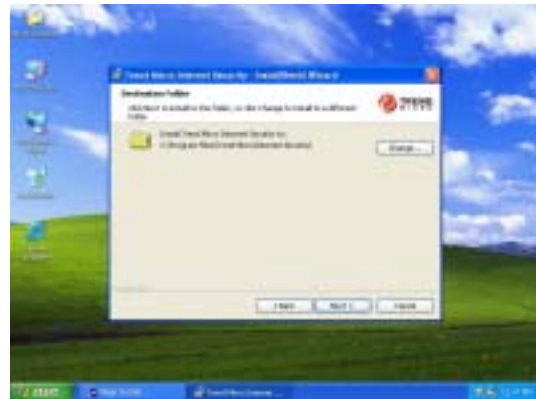
1. Click PC-CILLIN when MAGIC INSTALL MENU appear



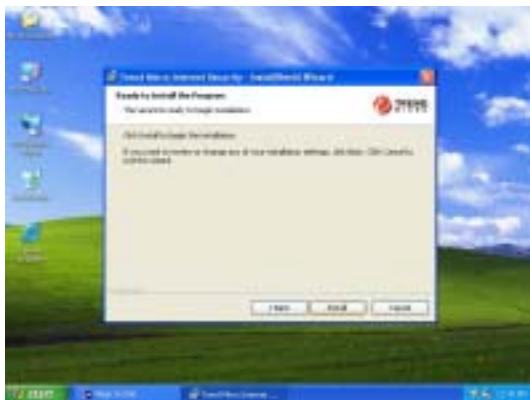
2. Click NEXT when the "Trend Micro internet security" installshield wizard windows appear



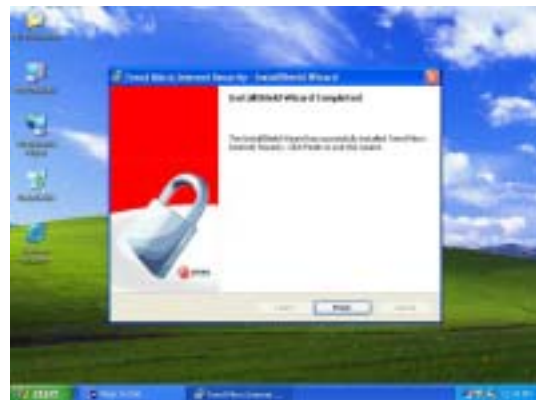
3. This is license agreement, select "I Accept the terms" and Click NEXT



4. Click NEXT and Enter your Customer Information, Click NEXT or choose Change to change the path for the file to be stored



5. Click INSTALL, Start to install the software



6. Setup Complete and click FINISH





7. After PC-CILLIN 2004 complete, Please register your information and we recommend select update item to download newest engine code and virus code

**Note :** Please install ACROBAT READER, Before you read PC-CILLIN 2004 User Manual, the path at X:\acrobat\adberdr6\_enu\_full.exe

## 4-8 HOW TO DISABLE ON-BOARD SOUND

Enter BIOS SETUP choose INTEGRATE PERIPHERALS choose ON-CHIP DEVICE FUNCTION choose AC97 SOUND DEVICE

Disable on-board sound function by press PAGE DOWN KEY to Disable

## 4-9 HOW TO UPDATE BIOS

Before update BIOS please choose Disabled in “Flash Part Write Protect” item on “Miscellaneous Control” in BIOS Setup, please refer page 35

**Method 1.** Use “Magic BIOS” update BIOS in Windows 98 (refer page 42)

**Method 2.** In DOS Mode

**STEP 1.** Prepare a boot disc. (you may make one by click START click RUN type SYS A: click OK)

**STEP 2.** Copy utility program to your boot disc. You may copy from DRIVER CD X:\FLASH\AWDFLASH.EXE or download from our web site.

**STEP 3.** Copy latest BIOS for P4X400DB/P4X400DBP/P4X400DBZ/P400TWIN from our web site to your boot disc.

**STEP 4.** Insert your boot disc into A:,  
start the computer, type “Awdflash A:\ P4X400DBAxxx.BIN /SN/PY/CC/R”  
P4X400DBAxxx.BIN is the file name of latest BIOS it can be P4X400DBA3.BIN or P4X400DBB2.BIN

SN means don't save existing BIOS data

PY means renew existing BIOS data

CC means clear existing CMOS data

R means restart computer

**STEP 5.** Push ENTER and the BIOS will be updated, computer will be restarted automatically.

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## CHAPTER 5

### 5-1 INSTALLATION OF MagicTwin (a 2-User-System solution)

#### Introduction

MagicTwin is a 2-User-System solution built on this special designed motherboard with a dual headed AGP graphic card, two PS/2 keyboard and mouse Y-cables and one piece of software (Driver and Tools). It allows you to add ONE additional station simultaneously running under Windows XP Home or XP-Professional (Service Pack 1).

#### Necessary Components to Configure 2-User-System:

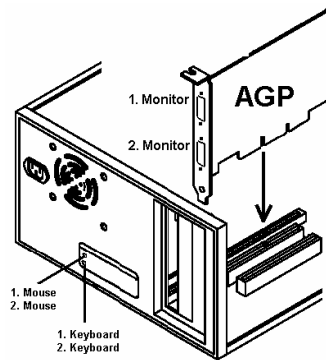
- one special designed Motherboard with connectivity hardware onboard
- one dual head AGP graphic card (purchased separately from your dealer)
- two Y-cables for two PS/2 Keyboards and two PS/2 Mice
- MAGIC INSTALL CD (incl. all DRIVERS you need and some TOOLS to enable the 2-User function of the motherboard). In addition this CD includes an auto detect software, which detects, installs and assigns the related 2<sup>nd</sup> video display and the 2<sup>nd</sup> PS/2 keyboard and PS/2 mouse.
- one serial number and activation key (printed on the sticker label on top of the CD package folding seal)
- two monitors
- two speaker systems (optional)

#### Recommendations

- CPU: >1GHz
- minimum 256 MB RAM for two Stations, running simultaneously
- two Standard PS/2 Keyboards, -Mice and two Monitors (Sound: optional)
- Hard disk and CD-ROM drive

#### Installation of MagicTwin

- We recommend to install Windows XP and all related drivers from the scratch
- Switch off your PC and open the computer case
- Remove the AGP slot bracket and insert a dual headed AGP Video Card purchased separately from your dealer into the AGP-slot. If the delivered motherboard comes with dual VGA port onboard, please skip this step.



Dual Port AGP VGA Card

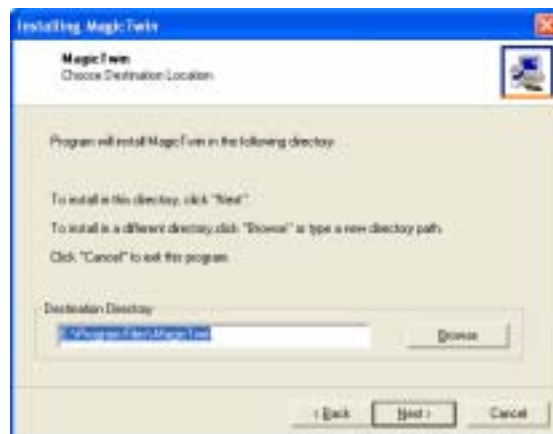
- As well attach the delivered Y-cables to the “green” port (former PS/2 Mouse port) and into the “violet” port (former PS/2 Keyboard port) at the rear side of the motherboard.
- Connect the 1<sup>st</sup> and 2<sup>nd</sup> mouse to the Y-cable, which is also linked to the “green” PS/2 connector and the 1<sup>st</sup> and 2<sup>nd</sup> keyboard to the other Y-cable, which is also connected to the “violet” port. The additional monitor **MUST** be attached otherwise windows will not detect and enable the 2<sup>nd</sup> monitor. Make sure the additional keyboards and mice work; they should affect the host console.
- Start your PC. Windows will automatically detect the new AGP Video device as a standard VGA-card. Please install first all drivers before installing “MagicTwin” of the MAGIC INSTALL CD. Insert the CD, wait for the automatic start and run the Installation of all other drivers beside the MagicTwin from the Magic Install CD. If the CD does not run automatically, please click to Start-> Run-> CD-Drive-> SETUP.EXE.
- After all other drivers have been installed, lastly install the MagicTwin as follow:



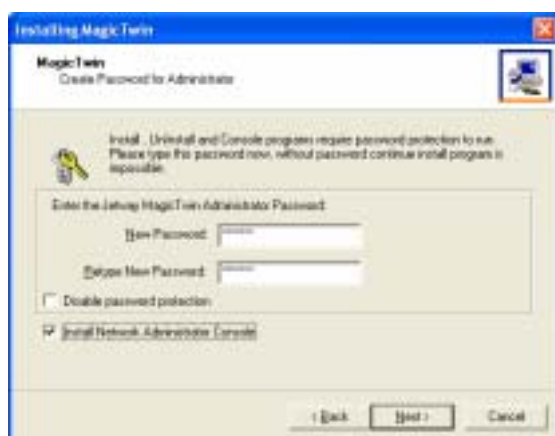
Click “MagicTwin” when the MAGIC INSTALL MENU appears. The Installation-routine will start...



Welcome- Mask, click “Next”



Option: Change destination path or click “Next”



Password and Network Console, click “Next”



Type in the Serial and your Address, click “Next”



Installation in process, please wait...



Afterwards “Reboot your PC”.

- Windows is restarting and loading the new installed drivers. The MagicTwin will be activated and assign automatically the 2<sup>nd</sup> Station to the 2<sup>nd</sup> monitor, -PS/2-keyboard and PS/2 mouse.
- Please login in to Windows and add one or more additional users under the control panel.

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## Dual Head AGP-card

*The NVIDIA MX 440-8X, MX-4000, FX 5200 and FX5600 dual-head graphic cards are supported under MagicTwin. One display can be used by the host and the second by the MagicTwin station. Contact your dealer for purchasing of the validated NVIDIA dual head AGP VGA card. Among them are:*

- |                       |                        |                        |
|-----------------------|------------------------|------------------------|
| 1. Jetway NV18-A2-64B | 2. Jetway NV34-AD-128B | 3. Jetway N31X-AD-128B |
| 4. Asustek V9520      | 5. Leadtek A340        | 6. Leadtek A180        |
| 7. MSI FX5600-TD128   | 8. MSI FX5200-TD128    |                        |

## Language Support

The MagicTwin Console text and online help have not been updated for all supported languages. The same applies to the installation process text, menu items and desktop shortcuts. Therefore some text may be incorrect with respect to some languages.

## Microsoft License Agreement

MagicTwin is (technically) able to run with only a single Windows-XP Installation and license. Each software application including Windows has its own EULA (End User License Agreement) that you must check for the specifics of multi-user application. The software license does not supersede any other manufacturer's license. Since most license agreements are vague about this specific situation of multi-user or leave it open, and their partners cannot give any general recommendation other than to check the EULA of the software that is being used on each of the workstations.

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